2.0 SPECIES INFORMATION

LISTING STATUS

The desert yellowhead was proposed for federal listing as a threatened species on December 22, 1998 (USFWS 1998b). USFWS reopened the comment period for the proposal on September 5, 2000 (USFWS 2000). In the same publication, comments were sought regarding a *Conservation Agreement, Assessment, and Strategy* drafted in March 2000. The conservation agreement had not been finalized or signed at the time this assessment was written. A final rule listing the desert yellowhead as threatened was published in the *Federal Register* on March 14, 2002 (USFWS 2002). Critical habitat for the desert yellowhead was designated March 16, 2004 (USFWS 2004). All 360 proposed acres were designated as critical habitat.

The ranks assigned by the Natural Heritage Program for this species are G1 and S1, indicating that the species is critically imperiled because of extreme rarity (known from five or fewer occurrences) on the global and state levels. WYNDD lists the desert yellowhead as a state endemic and a High Conservation Priority (Fertig and Beauvais 2001).

Although monitoring data have shown an increase in population since 1995, the desert yellowhead is a rare and endemic plant that is considered imperiled because of potential threats from oil and gas development and its naturally rare and endemic nature. Although it is not in immediate danger of extinction, the desert yellowhead is likely to be listed as endangered if future impacts are realized. A reclassification as endangered would not, however, provide any additional protection because the species is known to occur only on federally administered surface lands (USFWS 2002).

ECOLOGY

Description of Species

The desert yellowhead is in the *Asteraceae* (Composite) family and is the only extant species known from the genus *Yermo*. It is a tap-rooted, glabrous perennial herb with leafy stems up to 12 inches high. The leathery leaves are alternate, lanceolate to oval, and 1.5 to 10 inches long (Fertig et al. 1994). The leaves are often folded along the midvein, and the margins may be smooth or toothed. The flower heads are numerous (25 to 180) and crowded at the top of the stem. Each head contains four to six yellow disk flowers surrounded by five yellow, keeled involucre bracts; ray flowers are absent. The pappus (the outer whorl of flowering parts) consists of numerous white bristles (Fertig 2000). Similar species include rayless species of groundsel (*Senecio hydrophilus* and *S. rapifolius*), which can be distinguished by their more numerous and green involucre bracts. The desert yellowhead flowers in mid-June to late July, although flowering plants have been observed during August in wet years (BLM and USFWS 2000). The plant primarily reproduces by seed but may spread by rhizomes (Fertig 2000). Seed dispersal is predominantly by wind and usually occurs through early September (BLM and USFWS 2000).

Description of Habitat

The desert yellowhead occurs on barren slopes and ridges on outcrops of white silty clay or Miocene sandstones of the Split Rock Formation. Hollows in these outcrops excavated by wind accumulate drifting snow and capture runoff, providing more moisture than in surrounding areas. Vegetation at these sites is typically sparse, consisting primarily of low-cushion plants and scattered clumps of Indian ricegrass (*Stipa hymenoides*) (USFWS 2000). Other associated species include *Arenaria hookeri, Astragalus kentrophyta, Cryptantha caespitosa, Haplopappus nuttallii, Ivesia gordonii, Phlox muscoides*, and

Senecio canus (Fertig 2000). The desert yellowhead is typically absent from surrounding areas that are dominated by Wyoming big sagebrush (*Artemisia tridentata* var. *wyomingensis*) (BLM and USFWS 2000).

Distribution

The desert yellowhead is a Wyoming endemic known only from the Beaver Rim area in southern Fremont County (**Map 2**). Wyoming botanist Robert Dorn discovered the species in 1990. It is known from a single occurrence on land managed by the BLM Lander FO. This single population occupies an area of 8 acres of suitable habitat (USFWS 2002). The population consists of one large subpopulation at the base of Cedar Rim and two smaller subpopulations associated with low sandstone and conglomerate hills less than ¼ mile away (BLM and USFWS 2000). The desert yellowhead site occurs between 6,720 to 6,760 feet in elevation (BLM and USFWS 2000).

In 2001, this population contained an estimated 12,000 individuals that existed entirely on federal lands (USFWS 2002). Monitoring data show that the actual population count has increased from 9,293 individuals in 1995 to 11,967 individuals in 2001, possibly in response to higher than normal precipitation during the study period (USFWS 2002). A decrease in population from 1997 to 1998 and again from 2000 to 2001 coincided with decreased precipitation.

Since 1990, surveys of other areas have failed to identify additional populations, although a number of sites with similar soils, drainage, and plant associations are found in the area. Surveys have focused on outcrops of the Split Rock, White River, Wagon Bed, and Wind River formations along Cedar Rim and Beaver Rim. Intensive surveys covered the area from the north bank of the Sweetwater River north to Oil Mountain and Sand Draw (BLM and USFWS 2000). In 1997, the eastern half of Beaver Rim was surveyed near Split Rock in Fremont County. Areas in Carbon and Natrona Counties were also searched in 1998, but no individuals of the species were located. Since 1995, surveys in similar habitat within the North Platte watershed, Washakie Basin, Great Divide Basin, and Green River Basin have proven equally unsuccessful in locating additional populations (USFWS 2002). Dorn has suggested that Cedar Rim might be the last refuge for this species (BLM and USFWS 2000).

Threats

The desert yellowhead is vulnerable to extinction from small-scale degradation of habitat because of its small population and limited geographic range (USFWS 1998b). Potential on-site disturbances threaten the existing desert yellowhead population. These disturbances could result from off-highway vehicle traffic associated with recreation and casual use for locatable mineral resources, surface prospecting, and mining claim staking. Other types of surface-disturbing activities, such as rights of way (ROWs), prescribed fires, range improvement projects, oil and gas exploration (including both geophysical testing and drilling) and development also threaten the existing population. These threats can, however be minimized or completely avoided using stipulations, conditions of approval, terms and conditions, and modifications to project design before any activity is approved.

Possible natural threats include trampling by wildlife, wildfire, drought and its effects on seed production, competition from non-native species, and random catastrophic events. The degree of threat by insect herbivory is unknown. The desert yellowhead does not appear to be palatable to livestock or wildlife (USFWS 2002).

Because of its small population and habitat, the desert yellowhead is vulnerable to over-collection for scientific and educational purposes. Furthermore, a series of drought years could result in a severe

reduction in population based on monitoring data that have indicated that population decreases after periods of decreased precipitation. It is unlikely that the species will exhibit a high rate of population growth, even if environmental conditions improve.

An additional natural threat is the decrease in genetic viability caused by the small population (USFWS 2002). There is a chance that the desert yellowhead may experience a decrease in its genetic variability that would lead to diminished fertility and survival.